Newsletter of the National Biological Information Infrastructure

nbii Access

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New Biological Information Initiative To Aid Urban Biodiversity Management

Can smart development and species conservation coexist in America's cities and suburbs? A growing movement – backed by planners, natural resource managers, city administrators, and conservation scientists – believes the answer is "yes."

State, county, and city governments across the nation are implementing various forms of proactive management to conserve and restore urban natural resources. In the latest development, support and coordination for these efforts may be forthcoming from the National Biological Information Infrastructure (NBII) <www.nbii.gov>, a federally-sponsored, Web-based information network coordinated by the U.S. Geological Survey that provides access to a broad range of data and analytical tools concerning our nation's plants and animals.

Urban streams like Holmes Run provide habitat and wildlife corridors within the built environment.

While numerous projects relating to urban ecology and biodiversity exist, the scientific underpinnings of urban natural resource management remain poorly formulated. There has been little effort to fuse the achievements and experiences of different initiatives in a common tool that can help guide communities in their efforts to protect biological resources while accommodating growth and development.

This need may soon be met by a proposed new NBII component, the Urban Biodiversity Information Project <dc-urbanbiodiversity.nbii.gov>. The goal of the project is to provide the data and information tools needed by

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Redesigned NBII Botany Web Site Unveiled

The NBII has redesigned the Botany Web site <http://www.nbii.gov/disciplines/botany>. To accommodate a broad range of audiences and expand the site, we have taken a new approach toward its overall design and functionality. Scientists, researchers, academics, and the public will find content suitable to their interests. There are links to scientific data sets, taxonomies, research projects, and educational information. The majority of the content of the site is new, including the addition of concept definitions.

The new site is divided into eight categories relating to the study of botany: Past and Future, Form and Function, Focus on Species, Applied Plant Sciences, Gardening, Collections and Organizations, Botany for Kids, and General Reference Sources. From the home page, the user can see the topics contained in each category and choose a section accordingly. For

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instance, Focus on Species explores such topics as Algae, Fungi, Mosses and Liverworts, Ferns and Fern Allies, Angiosperms, and Gymnosperms. When the user clicks on Focus on Species, a new page appears, with these topic choices available in a "Contents" list. Each topic is introduced on the page with a definition. Links to appropriate Web sites follow.

Within each topic in a category, links to Web sites have been classified according to the depth and type of the information contained in the linked site. Groupings within the topic areas include Basic Information, Advanced Information, Resources with Extensive Links, Databases, Research, and General Reference. Basic Information provides information about a topic at a fundamental level, whereas Advanced Information features more in-depth perspectives on that topic area. Databases features searchable databases and data sets available on the Web. Research features types of scientific research being conducted on a topic, and General Reference focuses on resources such as glossaries and encyclopedias that further develop and clarify a subject.

We hope you visit our new site and find your experience both useful and enjoyable. The NBII is always open to suggestions for interesting Web site links to add, so do not hesitate to send us your comments to <nbii@nbii.gov>.

Horticulture data are available in the Applied Plant Sciences section (above) of the redesigned site. Daisies, and many other wildflowers, are examined in the new Gardening section (below).

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Visit the NBII Home Page at <http://www.nbii.gov>.

NBII Exhibits at ESRI Conference

The National Biological Information Infrastructure (NBII) <www.nbii.gov> was in the spotlight at the Twenty-third Annual ESRI International User Conference, held from July 7-11 at the San Diego Convention Center. ESRI is the Environmental Systems Research Institute, the world's leading maker of GIS (geographic information system) software.

The NBII's Mike Mulligan (left) and Mike Frame (center) explain the Program's GIS capabilities to an exhibit visitor.

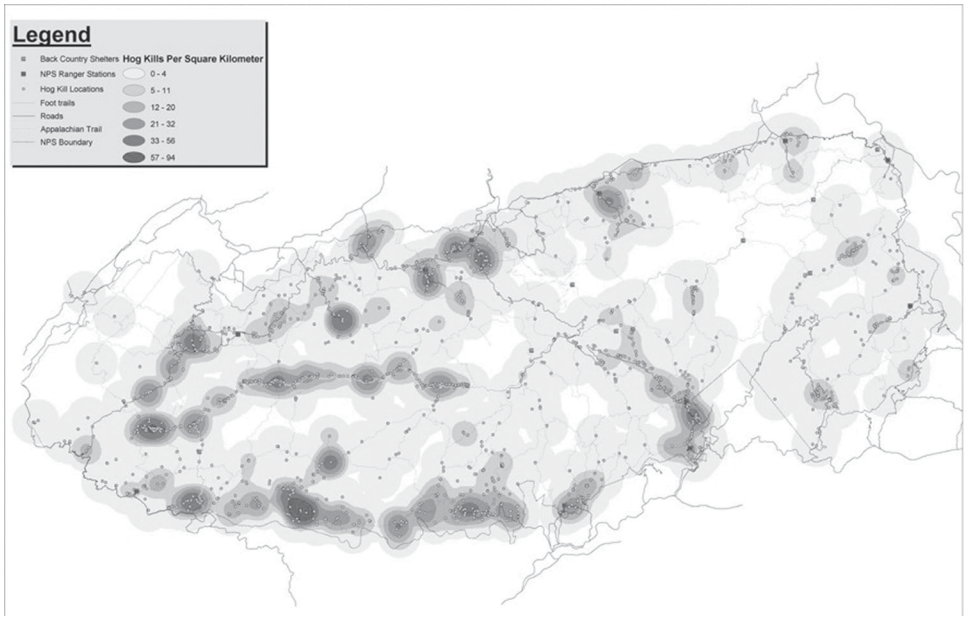
The NBII had an exhibit booth at the conference in addition to hosting a Geospatial Workshop at the same venue. The exhibit booth displayed information and posters describing the NBII nodes, including the NBII Bird Conservation Node <http://birdcon.nbii.gov> and the NBII Central Southwest/Gulf Coast Information Node <http://cswgcin.nbii.gov>. The NBII's John Clark, who manned the booth during the conference, commented, "There was universal interest in the nodes and agreement from visitors to the booth that the nodes are an excellent way of enhancing the biological knowledge base on the Web."

A majority of the nodes were also represented at the second NBII Geospatial Workshop, which was held during the conference. The Central Southwest/Gulf Coast Information Node hosted the meeting and provided valuable support in organizing it and displaying their own geospatial capabilities. The first presenter was Harold Rihn from the NBII Wildlife Disease Information Node. He discussed the ArcIMS application being developed as part of the node (ESRI is the developer of ArcIMS). The NBII's Mike Mulligan presented Russ Hoff's work on GIS data models and the representation of time. Mike Frame, NBII Technology R&D Director, closed with a brief discussion of the NBII portal. He urged the workshop participants to collaborate with the geospatial community more in their document management practices.

SAIN Wins ESRI Award

This year, ESRI's "Special Applications in GIS" (SAG) award went to the NBII Southern Appalachian Information Node (SAIN). NBII partners at the University of Tennessee at Chattanooga (UTC) submitted a description of a project to map hog control efforts in the Great Smoky Mountains National Park along with a graphic representation of the hog kill data. In order to properly ascertain the equitability of park-wide hog control efforts, UTC graphically portrayed the hog removal successes in a geospatially referenced format such as that available with ESRI products. ESRI was so impressed with the graphic representation that they showcased UTC's hog kill map in the opening ceremony of their conference (see graphic at right).

SAIN was awarded the elegant SAG award and certificate for its special application of GIS software in the hog control mapping project. SAIN's Robb Turner of UTC says, "This project is an example of how SAIN and the NBII can assist public land managers in protecting and preserving natural communities while bringing this kind of information to a broader audience."



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local governments to balance conservation and resource protection with human needs. While being developed initially at the local level in northern Virginia, the long-term vision is an integrated system of urban biodiversity information and management practices that can be used as a model for communities across the country.

Why focus on urban biodiversity? Because what we see today is urban development pushing forward, and spaces between urban areas becoming smaller. As society consumes more open land, we need to start managing biodiversity in urban systems. By understanding the factors that allow some species to survive and prosper in non-traditional habitats, it may be possible to incorporate more plant and wildlife-friendly elements into existing cityscapes, and into the process of urban planning and growth.

Increasing the species richness of populated areas can provide social, as well as biological benefits. The presence of wildlife and native plant species in cities often signals a healthier, aesthetically richer, and less alienating urban environment. When biodiversity is present, natural processes and cycles are more visibly maintained amidst the hustle and bustle of city life. Ecological services such as nutrient cycling, water drainage and retention, pollination, and pest control may be provided by natural rather than artificial mechanisms. Efforts to sustain and enhance urban biodiversity may pay off for city residents in a number of ways – from recreational opportunities, to higher property values, to better overall quality of life.

Before such management can truly begin, however, our existing urban areas need to be re-examined from a biodiversity perspective. Where is urban biodiversity concentrated, and what are the characteristics of the natural and built environment in these areas? How are species and ecological processes affected by different kinds or degrees of urban development?

The Urban Biodiversity Information Project is being designed to address these needs. To demonstrate how improved quality and access to information can support more environmentally responsible planning and decision-making, a pilot project is under way in the Hunting Creek Watershed in northern Virginia, which includes the drainages from Holmes Run, Tripps Run, Lake Barcroft, and Cameron Run. While the focus is on biodiversity, the project area is no nature preserve or rural enclave, but one of the most rapidly developing regions of the United States.

Preserved habitat in the urban landscape provides benefits not only to biodiversity, but also to people seeking recreation and natural settings.

The pilot project is being carried out with the participation and support of local government agencies and other stakeholders, and is part of a larger, long-term collaboration between the NBII, Virginia Tech University, and the Metropolitan Washington Council of Governments to examine the effects of urban and suburban growth in the metropolitan Washington, D.C., area.

Critical to the project's success will be the quantity and quality of information describing biological resources. Initially, the project is making use of existing biological inventories for aquatic and upland habitats within the watershed. Information is being compiled from state, county, and municipal agencies, as well as universities, natural history organizations, and citizen groups. Additional research on various plant and animal groups is underway. All of this biological data will provide a baseline against which future changes can be measured, and will aid governments in prioritizing research and restoration activities.

Biological information will also be at the heart of the project's final element, public education. While much of the project will be targeted towards administrators and decision-makers, reaching the general public is also crucial. Planned educational components include a Web site featuring links to teacher resources and lesson plans, and a series of "watershed education days" in which teachers, students, and citizens can participate in learning, demonstration, and research activities.

While still not fully funded, the urban biodiversity pilot project has already brought together an enthusiastic array of partners and participants, and initial information gathering is under way.

International Association of Fish and Wildlife Agencies (IAFWA)/ NBII Partnership Update

This September, the IAFWA held its 100th anniversary celebration at its annual meeting in Big Sky, MT. Nearly 800 registrants crowded the mountain resort to continue IAFWA's long tradition of fish and wildlife agency cooperation on critical conservation issues. IAFWA was founded in the spirit of 8 people from 6 agencies who realized that they could help the people and wildlife resources in their states if they collaborated on key issues.

Imagine the difficulties these conservation pioneers faced in 1902! Just traveling to that first meeting would have been overwhelming for most of the participants, not to mention the complications they faced actually collaborating on conservation issues.

Technology has enabled wildlife agencies to share information in ways that the original IAFWA members could never have imagined. E-mail, instant messaging, and even low-tech solutions like Federal Express are commonplace. State fish and wildlife agencies can meet their constituents' needs by working on key issues with other states, especially as more agencies continue migrating towards database and Internet technologies.

Infected mule deer with CWD.

Photo courtesy of Christina Sigurdson, Colorado State University. Photo taken at Colorado Division of Wildlife Research Facility.

Collaborative features and technical expertise are NBII hallmarks that states can use to get the most from technology. In the next 100 years of wildlife management, we can expect that wildlife and fisheries managers can work efficiently on interstate issues by providing critical habitat maps, wildlife species distributions, and harvest statistics using secure Internet connections.

Sage grouse in the western states and chronic wasting disease (CWD) are excellent examples of how multi-state information sharing can benefit wildlife. The directors of the state fish and wildlife agencies recently approved two Multi-state Conservation Grants to support the data management needs of wildlife managers, enabling them to take better advantage of database and Internet technology. The goal is to get information to decision makers and resource managers.

Sage grouse are dependent on sagebrush habitats. In many ways, sagebrush itself is seen as a symbol of the western way of life. Each spring, sage grouse dance in their annual mating ritual, hoping to propagate another generation. Sage grouse, though, are in trouble, and the state fish and wildlife agencies and federal partners are working together to protect

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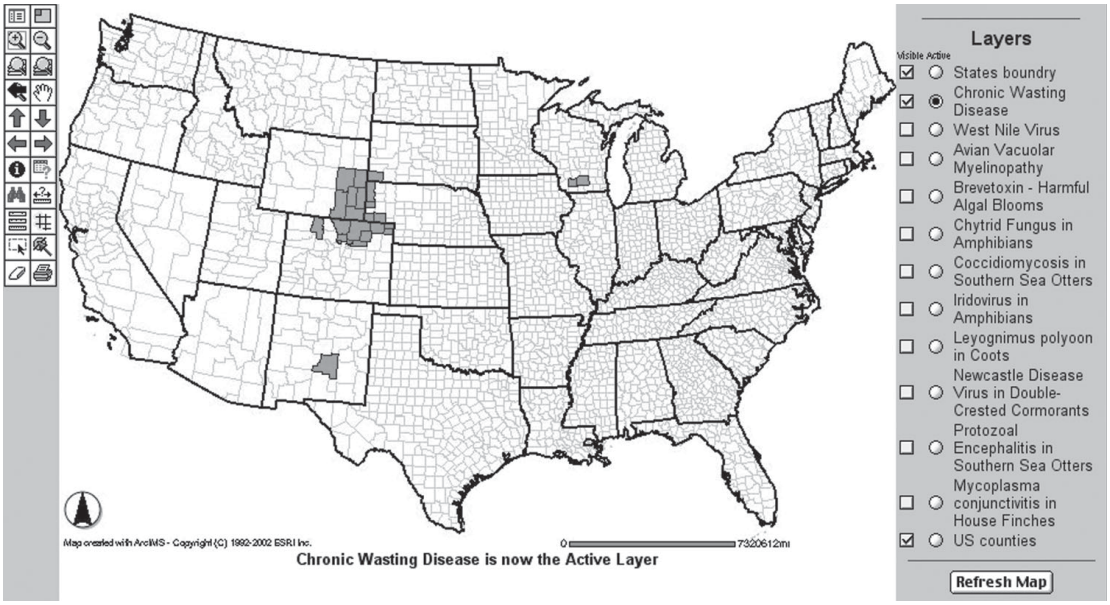

Screenshot of geospatial CWD disease data for wild cervids; map available through the NBII Wildlife Disease Information Node <http://wildlifedisease.nbii.gov>.

IABIN Proposal Development Project Kicks Off

A year of consultation to define the content and architecture of the Inter-American Biodiversity Information Network (IABIN) kicked off in late summer with the receipt of the first portion of a $650K grant to IABIN from the Global Environment Fund (GEF). A group of specialists has been retained by the Organization of American States, the executing agency for the GEF grant, to analyze the biodiversity information requirements and resources in their respective subregions (see map).

Alberto Oriza-Barrios, of Cancun, Mexico, has been retained as the project's Regional Coordinator. In that role, Mr. Oriza will lead the efforts of the subregional specialists and, based on their assessments, propose a network architecture to achieve interoperability among the subregions and with other relevant initiatives and organizations. The resulting five-year implementation plan for IABIN will include priorities for the incorporation of content into the network, steps for capacity building and continuing education for biodiversity information providers and users, and estimated costs for the activities proposed.

IABIN seeks to promote sustainable development and biodiversity conservation through the sharing of biodiversity information for decision-making and education among the countries of the Americas.

A Web site for the project, established at <http://www.iabin.cun.net>, includes contact information for the subregional specialists and other information about the effort. A calendar lists workshops convened in the subregions in order to increase interaction among participants and initiate partnerships among biodiversity information providers and users in the region.

Joint Meeting Planned

At the conclusion of the GEF project, the IABIN Council will convene to review the results and to move ahead with a proposal to GEF for a full-scale project, on the order of $4-5 million for the implementation of IABIN as defined. Because IABIN is working closely with the Clearing-House Mechanism (CHM) of the Convention on Biological Diversity, the CHM has invited IABIN to hold its Council Meeting in conjunction with the CHM's GRULAC (Group of Latin American and Caribbean States) Regional Meeting. To ensure harmony with other biodiversity networking initiatives, IABIN and the CHM have also invited the Global Biodiversity Information Facility, UNESCO, and NatureServe to participate in this joint meeting, tentatively scheduled for early summer 2003.

IABIN seeks to promote sustainable development and biodiversity conservation through the sharing of biodiversity information for decision-making and education among the countries of the Americas. Additional information is available at <http://www.iabin.net> and <http://www.iabin-us.org>.

Upcoming Events of NBII Interest

WebSearch University, Rosemont, IL.	October 22-23
KMWorld & Intranets 2002, Santa Clara, CA.	October 29-31
North American Lake Management Society 2002 Annual Symposium, Anchorage, AK.	October 30-November 1
World Watershed Summit, Washington, DC.	October 30-November 1
National Association of Biology Teachers (NABT), Cincinnati, OH.	October 30- November 2
The Charleston Conference: "Two Faces have I: One for Books, One for Bytes," Chapel Hill, NC.	October 31-November 2
National Fish and Wildlife Data Summit, Baltimore, MD.	November 1-5
American Water Resources Association 2002 Annual Conference, Philadelphia, PA.	November 3-8
Internet Librarian 2002, Palm Springs, CA.	November 4-6
Southern Appalachian Man & the Biosphere 13th Annual Conference, Gatlinburg, TN.	November 5-7
Western Society of Naturalists 83rd Annual Meeting, Monterey, CA.	November 8-11
ASPRS Fall 2002 Conference: Integrating Remote Sensing at The Global, Regional, and Local Scale, Denver, CO.	November 8-15
Symposium on Effects of Fishing Activities on Benthic Habitats: Linking Geology, Biology, Socioeconomics, and Management, Tampa-St. Petersburg, FL.	November 12-14
50th Annual Meeting of the Entomological Society of America, Ft. Lauderdale, FL.	November 17-20
American Society for Information Science & Technology (ASIST), Philadelphia, PA.	November 18-21
Ocean Optics OOXVI, Santa Fe, NM.	November 18-22
WebSearch University, Irving, TX.	November 19-20
Fire Conference 2002: Managing Fire and Fuels in the Remaining Wildlands and Open Spaces of the Southwestern United States, San Diego, CA.	December 2-5
Online Information 2002, London, England.	December 3-5
	2003
Open Forum on Metadata Registries, Santa Fe, NM.	January 20-24
Association for Library and Information Science Education (ALISE) Conference, Philadelphia, PA.	January 21-24
Special Libraries Association Winter Meeting & Education Conference, New Orleans, LA.	January 23-25
American Library Association Midwinter Meeting, Philadelphia, PA.	January 24-29

sagebrush habitats and sage grouse. With $27,000 from the IAFWA Multi-state Conservation Grant and $25,000 from the NBII, a partnership to conserve sage grouse will be strengthened by the improved access to data. The USGS SAGEMAP program will provide additional technical support and the computer network infrastructure to get sage grouse data to conservation planning teams working on sagebrush restoration projects.

CWD is a degenerative brain disease in deer and elk that may be the highest profile issue facing state fish and wildlife agencies today. Through an IAFWA Multi-state Conservation Grant, the Conservation Management Institute (CMI) at Virginia Polytechnic Institute will assist state fish and wildlife agencies to develop data transfer mechanisms that will allow inclusion of their state data in the national CWD electronic information clearinghouse located at the National Wildlife Health Center in Madison, WI, and managed by the NBII's Wildlife Disease Information Node (WDIN). The WDIN's database, which was endorsed by state and federal representatives in the National CWD Management Plan as the "one stop" shopping source for scientific, technical, and geospatial CWD information, is being designed to handle mapping capabilities for CWD positive and negative brain tissue samples to help identify and analyze disease distribution patterns and to make accessible near real-time comprehensive data on CWD. While the intent is to make this a collaborative effort, data security will be a priority and partners will determine the extent to which their data are available. The IAFWA - funded CMI proposal will ultimately facilitate CWD information collection and sharing that will greatly benefit wildlife managers nationwide through the node's comprehensive Internet-based CWD partner-based data system.

The founders of IAFWA could never have comprehended how information sharing would blossom so that wildlife managers today have such a positive outlook on managing the overwhelming collaboration needs of issues like CWD and sage grouse.

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